

FAA National Software Conference, June 2001

Military Transition

Military Transition

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Topics

- Current status
- Difference in focus between the FAA & USAF
- Certification Issues
- DER Roles

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Current Status - USA

- FAA Washington, DC
 - Charter is for commercial only: resource & budget issues
 - Military projects on a case-by-case basis
 - So far only update programs with FAA certified baselines (original aircraft was certified first by the FAA, then later militarized)
 - No other FAA process exists for other aircraft types at this time
 - unmanned vehicles
 - fighters
 - bombers

Current Status - USA

- USAF Global Air Traffic Management (GATM)
 - Presidential Order, requiring upgrade to GPS
 - USAF Policy for GATM upgrades to military aircraft
 - Required to maintain FAA certified baselines
 - ICAO Timeline (>40 nations)
 - Air traffic in Europe's regions implement CNS/ATM upgrades systematically over the next 20 years
 - Over-fly of state aircraft are individually negotiated by the State Department with each air traffic region by model & functionality, with access as follows:
 - first by waiver / then accommodations / finally - restricted

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Current Status - USA

- New CNS/ATM software certification guidance just completed
 - Derivative of DO-178B
 - Critical problem & needed in US & Europe
 - FAA certification process between ACO & Acquisition not established
 - Approvals done by ACO only, but need to expand to work with FAA Acquisition (CNS/ATM branch)
 - CNS/ATM system certification guidance already available (RTCA/SC189)
 - Precedence established for system approval process between ACO & Acquisition (FANS)

Different Focus between USAF & FAA for Free Flight

- USAF (GATM)
 - Need for upgrade to aircraft, standardization of CNS airborne equipment
- FAA
 - Need for scheduled & consistent implementation of greater accuracy in CNS/ATM for both airborne/non-airborne equipment in US airspace

CNS/ATM system = ground + network(air/ground) + aircraft

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Certification Issues

- A military development for a single program has many contracts before an aircraft is in service
 - Needed to bridge certification requirements between contracts for transition of outstanding compliance until all is complete
 - Roles & responsibilities are fragmented in the military
 - Requires a unique approach to the certification planning, including the PSAC

Certification Issues

- The relationship with a DER/FAA is a challenge to past military contract practice
 - The “contract” with the FAA (Cert. Plan /PSAC) has precedence over a contract between the USAF & their contractors
 - DERs must be autonomous from the program & customer & free from intimidation

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Certification Issues

- Protocol must be followed, with the DER & Airworthiness function as the sole interface with the FAA
 - This is new to the military customer
 - Control of the program is not hierarchical
- All that is necessary for FAA certification is not written down
 - Military programs have had a legacy of developing only to the written word or it doesn't happen

Certification Issues

- FAA certification is based on recognized industry guidance for safety, e.g.,
 - DO-178B for certification aspects of software
 - DO-254 for complex hardware
 - ARPs 4761, 4754 for safety assessments
 - DO-200A/-201A for navigation databases
 - FAA Notices
- Legacy military programs have been based on military standards

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New Roles for Software DERs

- USAF programs requiring FAA certification need DER expertise
 - The DER becomes an advisor
- Military contractors need training & DER expertise throughout a program
 - Advisors
 - DERs for component & aircraft certification

New Roles for DERs

- Creativity is needed to merge the 2 worlds
 - Creative approaches, e.g., “FQT” vs. DO-178B; use of service history, partitioning
 - Team relationship with Electronic System Command (ESC) of the USAF
 - help the project meet two masters

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Questions?

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